

SEQUENCE LISTING

<110> Tanksley, Steven D.

<120> GENE CONTROLLING FRUIT SIZE AND CELL DIVISION IN PLANTS

<130> 19603/3211

<140>

<141>

<150> 60/215,824

<151> 2000-07-05

<160> 39

<170> PatentIn Ver. 2.1

<210> 1

<211> 492

<212> DNA

<213> Lycopersicon pennellii

<400> 1

atgtatccaa cggttagata taatcttaggt ctaatgaaac aaccttatgt tcctcctcac 60
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gatgaccctg ctaactgttt agttactagt gtttgcctt gtatcacctt tggacagatt 180
tctgaaatac taaacaaagg aacaacttca tgtggagta gaggtgcatt atattgtttg 240
ctgggactga caggattgcc tagcctatat tcctgcttct acaggtctaa aatgaggggg 300
caatatgatc tggaagaggc accttgtgtt gattgtctt tacatgtatt ctgtgaacct 360
tgtgctctt gccaagaata cagagagctt aagaaccgtg gctttgatat gggaaataggg 420
tggcaagcta atatggatag acaaagccgg ggagttacca tgccccctta tcatgcaggc 480
atgaccaggta ga 492

<210> 2

<211> 163

<212> PRT

<213> Lycopersicon pennellii

<400> 2

Met Tyr Pro Thr Val Gly Tyr Asn Leu Gly Leu Met Lys Gln Pro Tyr
1 5 10 15

Val Pro Pro His Tyr Val Ser Ala Pro Gly Thr Thr Ala Arg Trp
20 25 30

Ser Thr Gly Leu Cys His Cys Phe Asp Asp Pro Ala Asn Cys Leu Val
35 40 45

Thr Ser Val Cys Pro Cys Ile Thr Phe Gly Gln Ile Ser Glu Ile Leu
50 55 60

Asn Lys Gly Thr Thr Ser Cys Gly Ser Arg Gly Ala Leu Tyr Cys Leu
65 70 75 80

Leu Gly Leu Thr Gly Leu Pro Ser Leu Tyr Ser Cys Phe Tyr Arg Ser
85 90 95

Lys Met Arg Gly Gln Tyr Asp Leu Glu Glu Ala Pro Cys Val Asp Cys
100 105 110

Leu Val His Val Phe Cys Glu Pro Cys Ala Leu Cys Gln Glu Tyr Arg
115 120 125

Glu Leu Lys Asn Arg Gly Phe Asp Met Gly Ile Gly Trp Gln Ala Asn
130 135 140

Met Asp Arg Gln Ser Arg Gly Val Thr Met Pro Pro Tyr His Ala Gly
145 150 155 160

Met Thr Arg

<210> 3

<211> 492

<212> DNA

<213> Lycopersicon esculentum

<400> 3

atgtatcaa cggtaggata taatccaggt ccaatgaaac aaccttatgt tcctcctcac 60
tatgtatctg ccccccgcac caccacggcg cggtggtcga ctggtctttg tcattgtttt 120
gatgaccctg ctaactgttt agttactagt gtttgccctt gtatcacctt tggacagatt 180
tctgaaatac taaacaaagg aacaacttca tgtgggagta gaggtgcatt atattgtttg 240
ctgggattga caggattgcc tagcctatat tcctgcttct acaggtctaa aatgaggggg 300
caatatgatc tggaaagaggc accttgtt gattgtctt tacatgtatt ctgtgaacct 360
tgtgctctt gccaagaata cagagagctt aagaaccgtg gctttgatata gggaataggg 420
tggcaagcta atatggatag acaaagccga ggagttacca tgccccctta tcatgcaggc 480
atgaccaggt ga 492

<210> 4

<211> 163

<212> PRT

<213> Lycopersicon esculentum

<400> 4

Met Tyr Gln Thr Val Gly Tyr Asn Pro Gly Pro Met Lys Gln Pro Tyr
1 5 10 15

Val Pro Pro His Tyr Val Ser Ala Pro Gly Thr Thr Ala Arg Trp
20 25 30

Ser Thr Gly Leu Cys His Cys Phe Asp Asp Pro Ala Asn Cys Leu Val
35 40 45

Thr Ser Val Cys Pro Cys Ile Thr Phe Gly Gln Ile Ser Glu Ile Leu
50 55 60

Asn Lys Gly Thr Thr Ser Cys Gly Ser Arg Gly Ala Leu Tyr Cys Leu
65 70 75 80

Leu Gly Leu Thr Gly Leu Pro Ser Leu Tyr Ser Cys Phe Tyr Arg Ser
85 90 95

Lys Met Arg Gly Gln Tyr Asp Leu Glu Glu Ala Pro Cys Val Asp Cys
100 105 110

Leu Val His Val Phe Cys Glu Pro Cys Ala Leu Cys Gln Glu Tyr Arg
115 120 125

Glu Leu Lys Asn Arg Gly Phe Asp Met Gly Ile Gly Trp Gln Ala Asn
130 135 140

Met Asp Arg Gln Ser Arg Gly Val Thr Met Pro Pro Tyr His Ala Gly
145 150 155 160

Met Thr Arg

<210> 5

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: B26 Primer

<400> 5

gactcgagtc gacatcga

18

<210> 6
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: B25 Primer

<400> 6
gactcgagtc gacatcga 18

<210> 7
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ORFXF2 Primer

<400> 7
aaacaacacctt atgttcctcc tca 23

<210> 8
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: FW01 Primer

<400> 8
gcccttgtat cacctttgga 20

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: GSP1 Primer

<400> 9
gatgatttca ttgatcttgc a 21

<210> 10
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Abridged
Anchor Primer

<220>
<221> unsure
<222> (24)..(35)
<223> N at any position in this sequence is Inosine

<400> 10
ggccacgcgt cgactagtagc gggnnnnnnn gggnnng 36

<210> 11
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: GSP2 Primer

<400> 11
taacatgaac atgcaggag tc 22

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Abridged
Universal Anchor Primer

<400> 12
ggccacgcgt cgactagtagc 20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: GSP3 Primer

<400> 13

gggagtcgga gatagcattg

20

<210> 14

<211> 164

<212> PRT

<213> Lycopersicon esculentum2

<400> 14

Met Asn Pro Ser Ala Gln Pro Ala Tyr Gly Glu Lys Pro Met Thr Gly
1 5 10 15

Val Pro Val Pro Gly Gln Phe Gln Ala Asn His Pro Gly Asn Trp Ser
20 25 30

Thr Gly Leu Cys Asp Cys Phe Ser Asp Ile Ser Ser Cys Cys Leu Thr
35 40 45

Cys Trp Cys Pro Cys Ile Thr Phe Gly Gln Ile Ala Glu Ile Val Asp
50 55 60

Lys Gly Thr Val Ser Cys Gly Ala Ser Gly Ala Leu Tyr Phe Leu Ile
65 70 75 80

Glu Ala Leu Thr Gly Cys Gly Cys Ile Tyr Ser Cys Phe Tyr Arg Ile
85 90 95

Lys Met Arg Lys Gln Tyr Met Leu Pro Glu Ser Pro Cys Gly Asp Cys
100 105 110

Leu Leu His Phe Cys Cys Glu Cys Cys Ala Leu Cys Gln Glu His Arg
115 120 125

Glu Leu Lys His Arg Gly Tyr Asp Met Ser Ile Gly Trp Gln Gly Asn
130 135 140

Met Asp Asn Gln Asn Gly Gly Ile Ala Met Ala Pro Gly Val Gln Gly
145 150 155 160

Gly Met Thr Arg

<210> 15
<211> 134
<212> PRT
<213> Lycopersicon esculentum3

<400> 15
Met Asp Pro Gln Pro Ala Met Tyr Arg Lys Lys Lys Asn Asp Val Pro
1 5 10 15
Trp Ser Thr Gly Leu Cys Asp Cys Met Ser Asp Pro Lys Asn Cys Cys
20 25 30
Ile Thr Leu Trp Cys Pro Cys Ile Thr Phe Gly Gln Val Ala Glu Ile
35 40 45
Ile Asp Lys Gly Ser Asn Ser Cys Gly Val Asn Gly Ala Leu Tyr Thr
50 55 60
Ile Ile Ile Cys Val Thr Ser Cys Pro Cys Ile Tyr Ser Cys Phe Tyr
65 70 75 80
Arg Asn Lys Met Arg Gln Gln Tyr Leu Leu Lys Lys Ser Pro Cys Gly
85 90 95
Asp Cys Leu Val His Cys Phe Trp Glu Ala Cys Ala Leu Cys Gln Glu
100 105 110
Tyr Arg Glu Leu Lys Asn Gln Gly Val Asp Met Ser Ile Gly Trp His
115 120 125
Gly Asn Val Glu Arg Gln
130

<210> 16
<211> 168
<212> PRT
<213> Lycopersicon esculentum4

<400> 16
Met Gly Met Gly Gln Tyr Gln Gln Gly Met Gln Pro Ala Pro Pro Met
1 5 10 15
Met Gly Ile Pro Phe Lys Pro Ile Leu Pro Thr Glu Ser Trp Lys Thr
20 25 30
Gly Leu Phe Asp Cys Met Glu Asp Pro Thr Asn Ala Leu Ile Thr Ala
35 40 45

Cys Phe Pro Cys Leu Thr Phe Gly Gln Ile Ala Glu Ile Val Asp Ser
50 55 60

Gly Gln Thr Pro Cys Thr Thr Ser Gly Leu Ile Tyr Gly Ala Ile Leu
65 70 75 80

Met Phe Ile Gly Met Pro Cys Ile Met Ser Cys Thr Tyr Arg Thr Lys
85 90 95

Leu Arg Ser Gln Tyr Gly Leu Met Glu Ser Pro Ala Pro Asp Trp Val
100 105 110

Ile His Cys Phe Cys Glu Cys Cys Ala Leu Cys Gln Glu Tyr Arg Glu
115 120 125

Leu His His Arg Gly Leu Asp Pro Ser Ile Gly Trp Gln Gly Asn Gln
130 135 140

Ala Gln Lys Gln Asn Met Gln Leu Gln Gln Ala Met Val Pro Ser Ser
145 150 155 160

Ser Pro Ser His Asp Gly Leu Ile
165

<210> 17

<211> 175

<212> PRT

<213> Lycopersicon esculentum5

<400> 17

Met Gly Arg Val Glu Ala Asn Asn Glu Gly Glu Thr Ser Gln Ala Glu
1 5 10 15

Ser Gly Thr Glu Pro Ala Ala Ser Gln Pro Gln Gln Phe Gln Gly Val
20 25 30

Gln Ser Val Tyr Gln Ser Pro Ser His Leu Thr Ile Gly Ala Pro Trp
35 40 45

Ser Thr Gly Leu Phe Asp Cys His Leu Asp Gln Thr Asn Ala Val Met
50 55 60

Thr Ala Phe Leu Pro Val Thr Phe Gly Gln Ile Ala Glu Val Leu Asp
65 70 75 80

Ala Gly Gln Met Thr Cys Pro Leu Gly Thr Phe Ile Tyr Met Leu Met

85

90

95

Met Pro Ala Val Cys Ser Gln Trp Ile Met Gly Ser Lys Tyr Arg Thr
100 105 110

Gln Leu Arg Gln Arg Tyr Asn Leu Val Glu Ala Pro Tyr Ser Asp Met
115 120 125

Ile Ser His Met Phe Cys Pro Cys Gly Ser Leu Cys Gln Glu Phe Arg
130 135 140

Glu Leu Leu Asn Arg Gly Leu Asp Pro Ala Leu Gly Trp Asn Gly Ile
145 150 155 160

Val Ala Gln Arg His Tyr Gly Asn Gln Gln Val Asn Gln Ala Ser
165 170 175

<210> 18

<211> 145

<212> PRT

<213> Petunia hybrida

<400> 18

Met Ser Asp Arg Pro Gln Val Pro Trp Ser Ser Gly Ile Cys Asp Cys
1 5 10 15

Phe Gln Asp Val Lys Gly Cys Cys Leu Thr Cys Trp Cys Pro Cys Ile
20 25 30

Thr Phe Gly Arg Ile Ala Glu Val Ala Asp Gln Gly Ser Thr Ser Cys
35 40 45

Val Val Ser Gly Thr Val Tyr Leu Leu Val Tyr Leu Val Thr Ser Gly
50 55 60

Phe Gly Cys Cys Trp Tyr Ser Cys Phe Tyr Arg Ser Lys Leu Arg Asn
65 70 75 80

Gln Tyr Tyr Leu Asp Glu Lys Pro Cys Ser Asp Leu Cys Thr His Cys
85 90 95

Cys Cys Glu Tyr Cys Ala Leu Cys Gln Glu Tyr Arg Glu Leu Gln Asn
100 105 110

Gln Gly Phe Asp Met Ser Thr Gly Trp Asn Glu Asn Met Glu Lys Trp
115 120 125

Lys Gly Ser Gly Gly Ala Leu Pro Pro Thr Val Gln Ala Ala Met Asn
130 135 140

Arg
145

<210> 19
<211> 149
<212> PRT
<213> *Arabidopsis thaliana*

<400> 19
Met Ala Ser Gln His Leu Gln Ala Asn Pro His Ala Glu Gly Glu Trp
1 5 10 15

Ser Thr Gly Phe Cys Asp Cys Phe Ser Asp Cys Gln Asn Cys Trp Leu
20 25 30

Cys Pro Cys Ile Thr Phe Gly Gln Val Ala Asp Ile Val Asp Arg Gly
35 40 45

Asn Thr Ser Cys Gly Thr Ala Gly Ala Leu Tyr Val Leu Leu Ala Ala
50 55 60

Ile Thr Gly Cys Gly Cys Leu Tyr Ser Cys Ile Tyr Arg Gly Lys Ile
65 70 75 80

Arg Ala Gln Tyr Asn Ile Arg Gly Asp Gly Cys Thr Asp Cys Leu Lys
85 90 95

His Phe Cys Cys Glu Leu Cys Ala Leu Thr Gln Glu Tyr Arg Glu Leu
100 105 110

Lys His Arg Gly Phe Asp Met Ser Leu Gly Trp Ala Gly Asn Val Glu
115 120 125

Lys Gln Gln Asn Gln Gly Val Ala Met Gly Ala Pro Ala Phe Gln
130 135 140

Gly Gly Met Ser Arg
145

<210> 20
<211> 152
<212> PRT
<213> *Arabidopsis thaliana*2a

<400> 20

Met Glu Ala Gln His Leu His Ala Lys Pro His Ala Glu Gly Glu Trp
1 5 10 15

Ser Thr Gly Phe Cys Asp Cys Phe Ser Asp Cys Lys Asn Cys Cys Ile
20 25 30

Thr Phe Trp Cys Pro Cys Ile Thr Phe Gly Gln Val Ala Glu Ile Val
35 40 45

Asp Arg Gly Ser Thr Ser Cys Gly Thr Ala Gly Ala Leu Tyr Ala Leu
50 55 60

Ile Ala Val Val Thr Gly Cys Ala Cys Ile Tyr Ser Cys Phe Tyr Arg
65 70 75 80

Gly Lys Met Arg Ala Gln Tyr Asn Ile Lys Gly Asp Asp Cys Thr Asp
85 90 95

Cys Leu Lys His Phe Cys Cys Phe Leu Cys Ser Leu Thr Gln Gln Tyr
100 105 110

Arg Glu Leu Lys His Arg Gly Tyr Asp Met Ser Leu Gly Trp Ala Gly
115 120 125

Asn Val Glu Arg Gln Gln Asn Gln Gly Gly Val Ala Met Gly Ala Pro
130 135 140

Val Phe Gln Gly Gly Met Thr Arg
145 150

<210> 21

<211> 151

<212> PRT

<213> Arabidopsis thaliana2b

<400> 21

Met Glu Ala Gln Leu His Ala Lys Pro His Ala Gln Gly Glu Trp Ser
1 5 10 15

Thr Gly Phe Cys Asp Cys Phe Ser Asp Cys Arg Asn Cys Cys Ile Thr
20 25 30

Leu Cys Cys Pro Cys Ile Thr Phe Gly Gln Val Ala Glu Ile Val Asp
35 40 45

Arg Gly Ser Lys Ser Cys Cys Ala Ala Gly Ala Leu Tyr Met Leu Ile
50 55 60

Asp Leu Ile Thr Ser Cys Gly Arg Met Tyr Ala Cys Phe Tyr Ser Gly
65 70 75 80

Lys Met Arg Ala Gln Tyr Asn Ile Lys Gly Asp Gly Cys Thr Asp Cys
85 90 95

Leu Lys His Phe Cys Cys Asn Leu Cys Ala Leu Thr Gln Gln Tyr Arg
100 105 110

Glu Leu Lys His Arg Gly Phe Asp Met Ser Leu Gly Trp Ala Gly Asn
115 120 125

Ala Glu Lys Gln Gln Asn Gln Gly Gly Val Ala Met Gly Ala Pro Ala
130 135 140

Phe Gln Gly Gly Met Thr Arg
145 150

<210> 22
<211> 136
<212> PRT
<213> Arabidopsis thaliana3a

<400> 22
Met Glu Lys Gln Trp Thr Ser Gly Leu Phe Ser Cys Met Glu Asp Ser
1 5 10 15

Glu Thr Val Ala Cys Leu Thr Cys Phe Cys Pro Cys Val Phe Thr Gly
20 25 30

Arg Ile Ala Asp Ile Ser Asp Glu Gly Arg Thr Gly Gly Cys Gly Thr
35 40 45

Cys Gly Val Phe Tyr Gly Leu Ile Cys Cys Val Val Gly Leu Pro Cys
50 55 60

Leu Phe Ser Cys Thr Tyr Arg Thr Lys Ile Arg Ser Lys Phe Gly Leu
65 70 75 80

Pro Glu Ser Pro Thr Ser Asp Cys Val Thr His Phe Phe Cys Glu Cys
85 90 95

Cys Ala Leu Cys Gln Glu His Arg Glu Leu Lys Thr Arg Gly Leu Asp
100 105 110

Pro Ser Ile Ser Gly Trp Ser Gly Asn Met Gln Arg Thr Met Ala Pro
115 120 125

Pro Met Ser Gln Gln Met Met Gly
130 135

<210> 23
<211> 190
<212> PRT
<213> Arabidopsis thaliana3b

<400> 23
Met Gly Arg Pro Gly Ser Gln Pro Asn Glu Ala Gln Pro Pro Pro Val
1 5 10 15

Gln Val Gln Pro Thr Val Asn Arg Asp Asn Gln Val His Ser Gln Asn
20 25 30

Gly Ala Ile Gly Gln Ala Asn Ile Gln Thr Gly Arg Pro Val Asn Asn
35 40 45

Gln Thr Gln Asn Leu Trp Ser Ser Asp Leu Phe Asp Cys Met Asn Asp
50 55 60

Ser Glu Asn Gly Leu Cys Ile Gly Ser Ala Val Ile Thr Cys Leu Ala
65 70 75 80

Pro Cys Val Thr Leu Gly Gln Ile Ala Glu Ile Val Asp Glu Gly Ala
85 90 95

Thr Thr Cys Ala Thr Gly Gly Leu Leu Tyr Gly Met Ile Phe Phe Ile
100 105 110

Gly Val Pro Phe Val Tyr Ser Cys Met Phe Arg Ala Lys Met Arg Asn
115 120 125

Lys Tyr Gly Leu Pro Asp Ala Pro Asp Trp Ile Thr His Leu
130 135 140

Phe Cys Glu His Cys Ala Leu Cys Gln Glu Tyr Arg Glu Leu Lys His
145 150 155 160

Arg Gly Phe Asp Pro Asn Ile Gly Trp Ala Gly Asn Val Gln Ala Gln
165 170 175

Gln Pro Val Met Ser Pro Pro Thr Gly Gln Arg Met Met Gly

180

185

190

<210> 24

<211> 190

<212> PRT

<213> Arabidopsis thaliana3c

<400> 24

Met Gly Arg Pro Val Gly Gln Thr Asn Gln Ala Gln Pro Ser Val Gln
1 5 10 15

His Thr Ala Ser Pro Ser Asn Lys Val Ser His Asn Gly Gly Ile Gly
20 25 30

Lys Pro Ala Asn Ile Pro Thr Gly Ile Pro Val Asn Tyr Gln Gln Thr
35 40 45

Gln Asn Gln Trp Ser Ser Gln Leu Phe Asp Cys Met Asn Asp Ser Glu
50 55 60

Asn Gly Leu Cys Ile Gly Leu Ala Val Ile Thr Leu Ile Ala Pro Cys
65 70 75 80

Val Thr Phe Gly Gln Ile Ala Glu Ile Val Asp Glu Gly Ala Thr Thr
85 90 95

Cys Ala Thr Ala Gly Leu Leu Tyr Gly Ala Leu Phe Phe Thr Gly Ala
100 105 110

Ser Phe Val Tyr Ser Tyr Met Phe Arg Ala Arg Ile Arg Lys Lys Phe
115 120 125

Gly Leu Pro Asp Ala Pro Asp Trp Ile Thr His Leu Val Cys
130 135 140

Met Pro Phe Ala Leu Cys Gln Glu Tyr Arg Glu Leu Lys His His Gly
145 150 155 160

Phe Asp Pro Ile Leu Gly Trp Ala Gly Asn Val Gln Gln Ala Gln Gln
165 170 175

Gln Glu Met Met Thr Pro Pro Thr Gly Gln Arg Met Met Gly
180 185 190

<210> 25

<211> 163

<212> PRT

<213> Arabidopsis thaliana4a

<400> 25

Met Tyr Gly Asn Gly Pro Val Phe Lys Ala Glu Gly Thr Ser Phe Arg
1 5 10 15

Asp Gln Pro Tyr Ala Glu Gln Leu Pro Gln Gly Leu Trp Thr Thr Gly
20 25 30

Leu Cys Asp Cys His Glu Asp Ala His Ile Cys Thr Tyr Gln Asn Thr
35 40 45

Ala Ile Met Pro Cys Val Ser Phe Ala Gln Asn Val Glu Ile Val Asn.
50 55 60

Arg Gly Thr Ile Thr Cys Met Asn Ala Gly Leu Ile His Leu Ala Leu
65 70 75 80

Gly Phe Ile Gly Cys Ser Trp Leu Tyr Ala Phe Pro Asn Arg Ser Arg
85 90 95

Leu Arg Glu His Phe Ala Leu Pro Glu Glu Pro Cys Arg Asp Phe Leu
100 105 110

Val His Leu Phe Cys Thr Pro Cys Ala Ile Cys Gln Glu Ser Arg Glu
115 120 125

Leu Lys Asn Arg Gly Ala Asp Pro Ser Ile Gly Trp Leu Ser Asn Val
130 135 140

Glu Lys Trp Ser Arg Glu Lys Val Thr Pro Pro Ile Val Val Pro Gly
145 150 155 160

Met Ile Arg

<210> 26

<211> 160

<212> PRT

<213> Arabidopsis thaliana4b

<400> 26

Met Asn Leu Ser Ser Asn Asp Gln Pro Ser Gln Gly Arg Ile Lys Ala
1 5 10 15

Lys Asp Trp Ser Thr Asp Leu Cys Glu Cys Trp Met Asp Ile Asn Ser

20

25

30

Cys Cys Leu Thr Cys Trp Cys Pro Cys Val Ala Phe Gly Arg Ile Ala
35 40 45

Glu Val Val Asp Arg Gly Ser Thr Ser Cys Gly Val Ser Gly Ala Met
50 55 60

Tyr Met Ile Ile Phe Met Leu Thr Gly Tyr Gly Gly Ser Ser Leu Tyr
65 70 75 80

Ser Cys Phe Tyr Arg Thr Lys Leu Arg Ala Gln Tyr Asn Leu Lys Glu
85 90 95

Arg Pro Cys Cys Asp Cys Cys Val His Phe Cys Cys Glu Pro Cys Ala
100 105 110

Leu Cys Gln Glu Tyr Arg Gln Leu Gln His Asn Arg Asp Leu Asp Leu
115 120 125

Val Ile Gly Trp His Gly Asn Met Glu Arg His Ala Arg Leu Ala Ala
130 135 140

Ser Thr Pro Ser Ala Pro Pro Leu Gln Ala Pro Met Ser Arg Leu Val
145 150 155 160

<210> 27

<211> 108

<212> PRT

<213> Arabidopsis thaliana5

<220>

<221> UNSURE

<222> (1)..(108)

<223> Xaa at any position in this sequence is unknown

<400> 27

Leu Leu Ser Ile Asn Ser Leu Leu Xaa Phe Xaa Ser Leu Ser Leu Phe
1 5 10 15

Met Glu Ala Gln His Xaa His Ala Lys Pro His Ala Glu Gly Glu Trp
20 25 30

Ser Thr Gly Phe Xaa Asp Cys Phe Xaa Asp Cys Lys Asn Cys Cys Ile

35

40

45

Thr Phe Trp Cys Pro Cys Ile Thr Phe Gly Gln Val Ala Glu Ile Val
50 55 60

Asp Arg Gly Ser Thr Ser Cys Gly Thr Ala Gly Ala Leu Tyr Ala Leu
65 70 75 80

Ile Ala Val Val Thr Gly Cys Ala Cys Ile Tyr Ser Cys Phe Tyr Arg
85 90 95

Gly Lys Met Arg Ala Gln Tyr Asn Ile Lys Gly Asp
100 105

<210> 28

<211> 167

<212> PRT

<213> Glycine max1

<220>

<221> UNSURE

<222> (158)

<223> Xaa at position 158 in this sequence is unknown

<400> 28

Met Tyr Gln Gln Gln Gly Ser Asp Pro Thr Lys Gln Ser Pro Ala Thr
1 5 10 15

Gly Phe Pro Val Ser Tyr Ser Asn Ser Thr Thr Tyr Ser Thr Asn Glu
20 25 30

Ala Ser Tyr Ala Pro Val Pro Pro Gln Pro Lys Pro Leu Val Asn
35 40 45

Trp Ser Thr Gly Leu Cys Asp Cys Phe Ser Glu Cys Gly Asn Cys Cys
50 55 60

Met Thr Cys Trp Cys Pro Cys Val Thr Phe Gly Arg Val Ala Glu Ile
65 70 75 80

Val Asp Lys Gly Ser Thr Ser Cys Gly Ala Ser Gly Ala Leu Tyr Thr
85 90 95

Leu Ile Cys Cys Val Ile Gly Cys Gly Cys Leu Tyr Ser Cys Phe Tyr
100 105 110

Arg Pro Lys Met Arg Arg Gln Tyr Gly Leu Lys Gly Asn Gly Cys Ser

115

120

125

Asp Cys Leu Ile His Cys Phe Cys Glu Pro Cys Ala Leu Cys Gln Glu
130 135 140

Tyr Arg Glu Leu Gln His Arg Gly Phe Asp Met Ile Ile Xaa Trp His
145 150 155 160

Gly Asn Val Glu Gln Arg Ser
165

<210> 29

<211> 72

<212> PRT

<213> Glycine max2

<400> 29

Arg Ala Glu Phe Gly Thr Arg Phe Ala Ala Ala Cys Gly Ala Ser Gly
1 5 10 15

Ala Leu Tyr Thr Leu Ile Cys Cys Val Ile Gly Cys Gly Cys Leu Tyr
20 25 30

Ser Cys Phe Tyr Arg Pro Lys Met Arg Arg Gln Tyr Gly Leu Lys Gly
35 40 45

Asn Gly Cys Ser Asp Cys Leu Ile His Cys Phe Cys Glu Pro Cys Ala
50 55 60

Leu Cys Gln Glu Tyr Arg Glu Leu
65 70

<210> 30

<211> 138

<212> PRT

<213> O.sativa1

<220>

<221> UNSURE

<222> (138)

<223> Xaa at position 138 in this sequence is unknown

<400> 30

Met Gln Asp Gln Ala Ala Pro Val Pro Trp Ser Thr Asp Leu Phe Asp
1 5 10 15

Cys Phe Asp Asp Ser Ser Asn Cys Phe Met Thr Trp Leu Cys Pro Cys
20 25 30

Ile Thr Phe Gly Gln Ile Ala Glu Ile Val Asp Arg Gly Ser Ser Ser
35 40 45

Cys Gly Thr Ser Gly Ser Leu Tyr Ala Leu Val Phe Leu Val Thr Gly
50 55 60

Cys Ser Cys Ile Tyr Ser Cys Ile Tyr Arg Ser Lys Leu Arg Ser Gln
65 70 75 80

Tyr Gly Leu Gln Glu Thr Pro Cys Pro Asp Cys Leu Val His Leu Trp
85 90 95

Cys Glu Pro Cys Ala Leu Cys Gln Glu Tyr Arg Glu Leu Lys Lys Arg
100 105 110

Gly Phe Asp Met Ser Leu Gly Asn Arg Lys Phe Asn Arg Trp His Ala
115 120 125

Asn Met Gly Glu Ala Arg Ala Lys Pro Xaa
130 135

<210> 31

<211> 123

<212> PRT

<213> O.sativa2

<400> 31

Cys Leu Cys Pro Cys Ile Thr Phe Gly Gln Ile Ala Glu Ile Ile Asp
1 5 10 15

Arg Gly Ser Ser Ser Cys Gly Thr Ser Gly Ala Leu Tyr Ala Leu Val
20 25 30

Met Leu Leu Thr Gly Cys Asn Cys Val Tyr Ser Cys Phe Tyr Arg Ala
35 40 45

Lys Met Arg Ser Gln Tyr Gly Leu Gln Glu Lys Pro Cys Ala Asp Cys
50 55 60

Pro Val His Phe Phe Cys Glu Pro Cys Ala Leu Ser Gln Glu Tyr Arg
65 70 75 80

Glu Leu Lys Lys Arg Gly Phe Asp Met Asn Leu Gly Trp His Ala Asn
85 90 95

Met Arg Gly Arg Val Thr Lys Pro Ala Met Thr Met Pro Pro His Met
100 105 110

Phe Pro Gly Met Asp Thr Leu Ile Asp Ser Lys
115 120

<210> 32
<211> 103
<212> PRT
<213> O.sativa3

<400> 32
Gly Thr Cys Pro Cys Leu Ala Ser Gly Thr Ala Tyr Ala Leu Leu Cys
1 5 10 15

Ala Ser Gly Met Gly Cys Leu Tyr Ser Cys Phe Tyr Arg Ser Lys Met
20 25 30

Arg Ala Gln Phe Asp Leu Asp Glu Gly Asp Cys Pro Asp Phe Leu Val
35 40 45

His Phe Cys Cys Glu Tyr Cys Ala Leu Cys Gln Glu Tyr Arg Glu Leu
50 55 60

Lys Asn Arg Gly Phe Asp Leu Gly Ile Gly Trp Ala Ala Asn Val Asp
65 70 75 80

Arg Gln Arg Arg Gly Val Thr Gly Ala Ser Val Met Gly Ala Pro Gly
85 90 95

Val Pro Val Gly Met Met Arg
100

<210> 33
<211> 135
<212> PRT
<213> O.sativa4

<400> 33
Asn Lys Gly Leu Tyr Ser Gln Ala Met Tyr Pro Ser Ala Pro Pro Asp
1 5 10 15

Ala Tyr Asn Lys Tyr Ser Ala Gly Ala Pro Pro Thr Ala Pro Pro Pro
20 25 30

Ala Thr Tyr Gln Leu Pro Thr Met Asn Thr Pro Arg Thr Gly Gly Gly
35 40 45

Leu Thr Arg Trp Ser Thr Gly Leu Phe His Cys Met Asp Asp Pro Gly
50 55 60

Asn Cys Leu Ile Thr Cys Val Cys Pro Cys Ile Thr Phe Gly Gln Val
65 70 75 80

Ala Asp Ile Val Asp Lys Gly Thr Cys Pro Cys Leu Ala Ser Gly Thr
85 90 95

Ala Tyr Ala Leu Leu Cys Ala Ser Gly Met Gly Cys Leu Tyr Ser Cys
100 105 110

Phe Tyr Arg Ser Lys Met Arg Ala Gln Phe Asp Leu Asp Glu Gly Asp
115 120 125

Cys Pro Asp Phe Leu Val His
130 135

<210> 34

<211> 81

<212> PRT

<213> O.sativa5

<220>

<221> UNSURE

<222> (10)..(61)

<223> Xaa at any position in this sequence is unknown

<400> 34

Leu Tyr Ser Cys Phe Tyr Arg Ser Lys Xaa Arg Ala Gln Phe Asp Leu
1 5 10 15

Asp Glu Gly Asp Cys Pro Asp Phe Leu Val His Phe Cys Cys Glu Tyr
20 25 30

Cys Ala Leu Cys Gln Glu Tyr Arg Glu Leu Lys Asn Arg Gly Phe Asp
35 40 45

Leu Gly Ile Gly Trp Ala Xaa Asn Val Asp Arg Gln Xaa Arg Gly Val
50 55 60

Thr Gly Ala Ser Val Met Gly Ala Pro Gly Val Pro Val Gly Met Met
65 70 75 80

Arg

<210> 35
<211> 130
<212> PRT
<213> O.sativa6

<220>
<221> UNSURE
<222> (117)
<223> Xaa at position 117 in this sequence is unknown

<400> 35
Leu Arg Tyr Gln Gln Leu His His Ile Leu Asn Leu Gln Gln Gln Val
1 5 10 15
Ile Val His Arg Arg Arg Lys Leu Lys Glu Ser Arg Arg Ser Met Ala
20 25 30
Lys Pro Ser Ala Ala Ala Trp Ser Thr Gly Leu Leu Asp Cys Phe Asp
35 40 45
Asp Cys Gly Leu Cys Cys Met Thr Cys Trp Cys Pro Cys Ile Thr Phe
50 55 60
Gly Arg Val Ala Glu Met Val Asp Arg Gly Ser Thr Ser Cys Gly Thr
65 70 75 80
Ser Gly Ala Leu Tyr Ala Cys Trp Arg Arg Ser Pro Ala Ala Ser Ser
85 90 95
Ser Thr Pro Ala Ser Thr Gly Ala Arg Cys Ala Pro Ser Thr Ala Ser
100 105 110
Ala Thr Thr Pro Xaa Ala Pro Thr Ala Ala Ser Thr Ser Gly Ala Thr
115 120 125
Ser Ser
130

<210> 36
<211> 144
<212> PRT
<213> O.sativa7

<220>

<221> UNSURE

<222> (140)

<223> Xaa at position 140 in this sequence is unknown

<400> 36

Arg Glu Ser Leu Thr Leu Ala Gly Arg Arg Val Arg Asp Arg Arg Arg
1 5 10 15

Arg Pro Val Arg Arg Ala Ser Ile Tyr Ile Leu Arg Ser Arg Arg Arg
20 25 30

Thr Val Glu Ala Pro Pro Pro Pro Phe Ala Met Gln Asp Gln
35 40 45

Ala Ala Pro Val Pro Trp Ser Thr Asp Leu Phe Asp Cys Phe Asp Asp
50 55 60

Ser Ser Asn Cys Phe Met Thr Trp Leu Cys Pro Cys Ile Thr Phe Gly
65 70 75 80

Gln Ile Ala Glu Ile Val Asp Arg Gly Ser Ser Ser Cys Gly Thr Ser
85 90 95

Gly Ser Leu Tyr Ala Leu Val Phe Leu Val Thr Gly Cys Thr Val Ser
100 105 110

Thr Pro Ala Ser Thr Ala Pro Thr Ala Val Pro Val Arg Pro Cys Arg
115 120 125

Arg Arg Pro Cys Pro Asp Cys Phe Val His Phe Xaa Cys Glu Pro Ser
130 135 140

<210> 37

<211> 126

<212> PRT

<213> Zea mays1

<220>

<221> UNSURE

<222> (34)

<223> Xaa at position 34 in this sequence is unknown

<400> 37

Ser Cys His Phe Ile Met Ser Met His Asp Ser Ile Pro Gly Cys Leu
1 5 10 15

Thr Cys Trp Cys Pro Cys Ile Thr Phe Gly Arg Val Pro Glu Ile Val
20 25 30

Asp Xaa Gly Ala Thr Ser Cys Gly Thr Ala Gly Ala Leu Tyr Pro Val
35 40 45

Leu Ala Tyr Phe Pro Gly Cys Gln Trp Ile Tyr Ser Cys Thr Tyr Arg
50 55 60

Ala Lys Met Arg Ala Gln Leu Gly Leu Pro Glu Thr Pro Cys Cys Asp
65 70 75 80

Cys Leu Val His Phe Cys Cys Glu Pro Cys Ala Leu Cys Gln Gln Tyr
85 90 95

Lys Glu Leu Lys Ala Arg Gly Phe Asp Pro Val Leu Gly Trp Asp Arg
100 105 110

Asn Ala Thr Met Leu Pro Pro Ser Ala Gln Gly Met Gly Arg
115 120 125

<210> 38

<211> 63

<212> PRT

<213> Zea mays2

<220>

<221> UNSURE

<222> (26)..(27)

<223> Xaa at positions 26 and 27 are unknown

<400> 38

Pro Thr Ile Thr Val Lys Met Ser Thr Tyr Pro Pro Pro Thr Gly Glu
1 5 10 15

Trp Thr Thr Gly Leu Cys Gly Cys Phe Xaa Xaa Cys Lys Ser Cys Cys
20 25 30

Leu Ser Phe Leu Cys Pro Cys Ile Pro Phe Gly Gln Val Ala Glu Val
35 40 45

Leu Asp Lys Gly Met Thr Ser Cys Gly Leu Ala Gly Leu Leu Tyr
50 55 60

<210> 39
<211> 104
<212> PRT
<213> Pinus taeda

<400> 39

Asp	Ser	Gly	Thr	Thr	Ser	Cys	Val	Val	Ser	Gly	Leu	Met	Cys	Tyr	Leu
1									10						15
Leu	Ala	His	Leu	Pro	Tyr	Ile	Ser	Pro	Ile	Tyr	Ile	Cys	Phe	Tyr	Arg
			20						25						30
Lys	Lys	Leu	Arg	Ala	Lys	Phe	Asn	Leu	Pro	Glu	Lys	Pro	Cys	Ala	Asp
			35				40								45
Cys	Leu	Val	His	Cys	Cys	Cys	Leu	Phe	Cys	Ala	Leu	Cys	Gln	Glu	Tyr
			50				55				60				
Arg	Glu	Phe	Lys	Asn	Arg	Gly	Leu	Asp	Pro	Ala	Leu	Gly	Trp	Ala	Val
			65				70				75				80
Cys	Met	Glu	Lys	Gln	Arg	Ser	Gly	Gln	Ala	Gly	Ile	Ala	Met	Gln	Pro
			85					90							95
Pro	Met	Gly	Gln	Ala	Met	Gly	Lys								
			100												